



August 26, 2016

Arcelor Mittal USA, Inc.
250 W US Highway 12
Burns Harbor, IN 46304-9745

Work Order No.: 16H1582

Re: Coke Oven Stack Test

Dear Jeffrey May:

Microbac Laboratories, Inc. - Chicagoland Division received 6 sample(s) on 8/23/2016 10:40:00AM for the analyses presented in the following report as Work Order 16H1582.

The enclosed results were obtained from and are applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report have been reviewed and meet the applicable project specific and certification specific requirements, unless otherwise noted. A qualifications page is included in this report and lists the programs under which Microbac maintains certification.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories.

We appreciate the opportunity to service your analytical needs. If you have any questions, please contact your project manager. For any feedback, please contact Robert Crookston, Managing Director, at robert.crookston@microbac.com.

Sincerely,
Microbac Laboratories, Inc.

Carey Gadzala
Project Manager

[Microbac Laboratories, Inc.](http://www.microbac.com)

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**WORK ORDER SAMPLE SUMMARY****Date:** *Friday, August 26, 2016***Client:** Arcelor Mittal USA, Inc.**Project:** Coke Oven Stack Test**Lab Order:** 16H1582

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
16H1582-01	Coke Oven Coal Changed	8/16/16	08/16/2016 00:00	8/23/2016 10:40:00AM
16H1582-02	Coke Oven Coal Changed	8/17/16	08/17/2016 00:00	8/23/2016 10:40:00AM
16H1582-03	Coke Oven Coal Changed	8/18/16	08/18/2016 00:00	8/23/2016 10:40:00AM
16H1582-04	No. 2 PEC Baghouse Dust	8/16/16	08/16/2016 00:00	8/23/2016 10:40:00AM
16H1582-05	No. 2 PEC Baghouse Dust	8/17/16	08/17/2016 00:00	8/23/2016 10:40:00AM
16H1582-06	No. 2 PEC Baghouse Dust	8/18/16	08/18/2016 00:00	8/23/2016 10:40:00AM

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Analytical Results

Date: Friday, August 26, 2016

Client: Arcelor Mittal USA, Inc.
Client Project: Coke Oven Stack Test
Client Sample ID: Coke Oven Coal Changed
Sample Description: 8/16/16
Matrix: Solid

Work Order/ID: 16H1582-01
Sampled: 08/16/2016 0:00
Received: 08/23/2016 10:40

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 7471B Analyst: RM								
Prep Method: SW-846 7471 Prep Date/Time: 08/25/2016 12:17								
Total Mercury by CVAA								
Mercury	dil	A	ND	0.040		mg/Kg	1	08/25/2016 15:38

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Analytical Results

Date: Friday, August 26, 2016

Client: Arcelor Mittal USA, Inc.
Client Project: Coke Oven Stack Test
Client Sample ID: Coke Oven Coal Changed
Sample Description: 8/17/16
Matrix: Solid

Work Order/ID: 16H1582-02
Sampled: 08/17/2016 0:00
Received: 08/23/2016 10:40

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 7471B Analyst: RM								
Prep Method: SW-846 7471 Prep Date/Time: 08/25/2016 12:17								
Total Mercury by CVAA								
Mercury	dil	A	ND	0.038		mg/Kg	1	08/25/2016 15:39

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Analytical Results

Date: Friday, August 26, 2016

Client: Arcelor Mittal USA, Inc.
Client Project: Coke Oven Stack Test
Client Sample ID: Coke Oven Coal Changed
Sample Description: 8/18/16
Matrix: Solid

Work Order/ID: 16H1582-03
Sampled: 08/18/2016 0:00
Received: 08/23/2016 10:40

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 7471B Analyst: RM								
Prep Method: SW-846 7471 Prep Date/Time: 08/25/2016 12:17								
Total Mercury by CVAA								
Mercury	dil	A	ND	0.042		mg/Kg	1	08/25/2016 15:40

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Analytical Results

Date: Friday, August 26, 2016

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	16H1582-04
Client Project:	Coke Oven Stack Test	Sampled:	08/16/2016 0:00
Client Sample ID:	No. 2 PEC Baghouse Dust	Received:	08/23/2016 10:40
Sample Description:	8/16/16		
Matrix:	Solid		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
<div> <div>Method: SW-846 7471B</div> <div>Analyst: RM</div> </div>								
<div> <div>Total Mercury by CVAA</div> <div>Prep Method: SW-846 7471</div> <div>Prep Date/Time: 08/25/2016 12:17</div> </div>								
Mercury	dil	A	ND	0.039		mg/Kg	1	08/25/2016 15:46



Analytical Results

Date: Friday, August 26, 2016

Client: Arcelor Mittal USA, Inc.
Client Project: Coke Oven Stack Test
Client Sample ID: No. 2 PEC Baghouse Dust
Sample Description: 8/17/16
Matrix: Solid

Work Order/ID: 16H1582-05
Sampled: 08/17/2016 0:00
Received: 08/23/2016 10:40

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 7471B Analyst: RM								
Prep Method: SW-846 7471 Prep Date/Time: 08/25/2016 12:17								
Total Mercury by CVAA								
Mercury	dil	A	ND	0.039		mg/Kg	1	08/25/2016 15:47

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Analytical Results

Date: Friday, August 26, 2016

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	16H1582-06
Client Project:	Coke Oven Stack Test	Sampled:	08/18/2016 0:00
Client Sample ID:	No. 2 PEC Baghouse Dust	Received:	08/23/2016 10:40
Sample Description:	8/18/16		
Matrix:	Solid		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
<div> <div>Method: SW-846 7471B</div> <div>Analyst: RM</div> </div>								
<div> <div>Total Mercury by CVAA</div> <div>Prep Method: SW-846 7471</div> <div>Prep Date/Time: 08/25/2016 12:17</div> </div>								
Mercury	dil	A	ND	0.041		mg/Kg	1	08/25/2016 15:48

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

B = Detected in the associated method Blank at a concentration above the routine RL
 b- = Detected in the associated method Blank at a concentration greater than 2.2 times the MDL
 b* = Detected in the associated method Blank at a concentration greater than half the RL
 CFU = Colony forming units
 D = Dilution performed on sample
 DF = Dilution Factor
 g = Gram
 E = Value above quantitation range
 H = Analyte was prepared and/or analyzed outside of the analytical method holding time
 I = Matrix Interference
 J = Analyte concentration detected between RL and MDL (Metals / Organics)
 LOD = Limit of Detection
 LOQ = Limit of Quantitation
 m3 = Meters cubed
 MDL = Method Detection Limit
 mg/Kg = Milligrams per Kilogram (ppm)
 mg/L = Milligrams per Liter (ppm)
 NA = Not Analyzed
 ND = Not Detected at the Reporting Limit (or the Method Detection Limit, if used)
 NR = Not Recovered
 R = RPD outside accepted recovery limits
 RL = Reporting Limit
 S = Spike recovery outside recovery limits
 Surr = Surrogate
 U = Undetected
 > = Greater than
 < = Less than
 % = Percent
 * = Result exceeds project specific limits

ANALYTE TYPES: (AT)

A,B = Target Analyte
 I = Internal Standard
 M = Summation Analyte
 S = Surrogate
 T = Tentatively Identified Compound (TIC, concentration estimated)

QC SAMPLE IDENTIFICATIONS

BLK = Method Blank	ICSA = Interference Check Standard "A"
DUP = Method Duplicate	ICSAB = Interference Check Standard "AB"
BS = Method Blank Spike	BSD = Method Blank Spike Duplicate
MS = Matrix Spike	MSD = Matrix Spike Duplicate
ICB = Initial Calibration Blank	ICV = Initial Calibration Verification
CCB = Continuing Calibration Blank	CCV = Continuing Calibration Verification
CRL = Client Required Reporting Limit	OPR = Ongoing Precision and Recovery Standard
PDS = Post Digestion Spike	SD = Serial Dilution
QCS = Quality Control Standard	

CERTIFICATIONS (Certs)

Below is a list of certifications maintained by the Microbac Merrillville Laboratory. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. Complete lists of individual analytes pursuant to each certification below are available upon request.

- ^d Illinois EPA drinking water, wastewater and solid waste analysis (#200064)
- ⁱ Kansas Dept Health & Env. NELAP (#E-10397)
- ^l North Carolina DENR NPDES effluent, surface water (#597)



COOLER INSPECTION

Client Name: Arcelor Mittal USA, Inc.

Work Order Number: 16H1582

Checklist completed by: 8/23/2016 10:00:00AM | Nicole Rainwater

Date: Friday, August 26, 2016

Date/Time Received: 08/23/2016 10:40

Received by: Nicole Rainwater

Reviewed by: 8/23/2016 | CAG

Carrier Name: Microbac

Cooler ID: Default Cooler

Container/Temp Blank Temperature: 21.0° C

After-Hour Arrival?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Shipping container/cooler in good condition?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample containers?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
COC present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included sufficient client identification?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included sufficient sample collector information?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included a sample description?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC agrees with sample labels?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC identified the appropriate matrix?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included date of collection?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included time of collection?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	
COC identified the appropriate number of containers?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples in proper container/bottle?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Sample containers intact?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
All samples received within holding time?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
If the samples are preserved, are the preservatives identified?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	

If No, adjusted by: _____

COC included the requested analyses?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC signed when relinquished and received?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples received on ice?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	
Samples properly preserved?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Voa vials for aqueous samples have zero headspace?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>

Cooler Comments: _____

ANY "NO" EVALUATION (excluding After-Hour Receipt) REQUIRES CLIENT NOTIFICATION.

Sample ID	Client Sample ID	Comments
16H1582-01	Coke Oven Coal Changed	
16H1582-02	Coke Oven Coal Changed	
16H1582-03	Coke Oven Coal Changed	
16H1582-04	No. 2 PEC Baghouse Dust	
16H1582-05	No. 2 PEC Baghouse Dust	
16H1582-06	No. 2 PEC Baghouse Dust	

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5713 West 85th Street
Indianapolis IN 46278

Chain of Custody Record

Number 136451

Instructions on back

Project	Coke oven	Stack Test
the Area for mi Hal BH		

Location

Zip _____ PO # _____

Jeff may	Compliance Monitoring? <input type="checkbox"/> Yes <input type="checkbox"/> No
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#	(1) Agency/Program

(PRINT)

rt via ☐ Mail ☐ Telephone ☐ Fax (fax #)

[[] e-mail (address)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

* Preservative Types: (1) HNO₃, (2) H₂SO₄, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

For Lab Use Only

Client Sample ID

*X

qt

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13</																																																																																							

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Sample Disposition		Disposition as appropriate		Return		Archive	
Sample Disposition	Disposition as appropriate	Return	Archive	Sample Disposition	Disposition as appropriate	Return	Archive
<input type="checkbox"/> Hazardous	<input type="checkbox"/> Non-hazardous	<input type="checkbox"/> Hazardous	<input type="checkbox"/> Non-hazardous	<input type="checkbox"/> Hazardous	<input type="checkbox"/> Non-hazardous	<input type="checkbox"/> Hazardous	<input type="checkbox"/> Non-hazardous
<input type="checkbox"/> To be completed by Microbac	<input type="checkbox"/> To be completed by Microbac	<input type="checkbox"/> To be completed by Microbac	<input type="checkbox"/> To be completed by Microbac	<input type="checkbox"/> To be completed by Microbac	<input type="checkbox"/> To be completed by Microbac	<input type="checkbox"/> To be completed by Microbac	<input type="checkbox"/> To be completed by Microbac
Comments		Comments		Comments		Comments	

Temperature Upon Receipt (°C)	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
77.8	[Signature]	8/25/88	[Signature]	8/25/88

[illegible][illegible][illegible][illegible]

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rev. 6/18/15